PHLOX AND POLEMONIUM (POLEMONIACEAE) IN THE INTERMOUNTAIN REGION

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Judging from the multiplicity of treatments its members have received, the Polemoniaceae must be regarded as one of the most difficult of plant families. Because of fancied intergradation between genera, Asa Gray lumped many of them under *Gilia*, while Otto Kuntze planned to go still further, and make all the extra-tropical taxa species of *Polemonium* (fortunately without proposing more than a small fraction of the new combinations). Taxonomic splitting has been less extensive, and in the scholarly study of the family by Grant (1959) all pertinent recombinations were made.

A third sort of treatment of taxa has also been applied in the family, their assignment to subjective ("taxonomic") synonymy of prior ones to which they have but slight morphologic and/or ecologic-geographic relationship, which may perhaps be designated taxonomic tossing. The writer has already (1965, 1967) called attention to two cases of this in a regional flora, and after long hesitation feels impelled to discuss the fate in another (Holmgren and Reveal, 1966) of the members of two genera on which he has made thousands of detailed observations and measurements, of which no corrections have been placed on record. In particular, he wishes to reassert his view that endemics are of such importance in the elucidation of speciation and evolution generally that they should be emphasized and not tossed into synonymic obscurity.

Page 84. *Phlox diffusa* Benth. ssp. *subcarinata* Wherry; var. *s.* Peck. *Phlox austromontana* Cov. var. *austromontana.* The latter is a plant of dry habitats with pale, rather coarse, acicular leaves up to 25 mm. long, and a usually nearly glabrous calyx with markedly carinate membranes. In contrast, *P. diffusa* Benth. ssp. *subcarinata* Wherry (var. *s.* Peck) has greener, finer, less acicular leaves under 15 mm. long, in its moister habitats having quite the aspect of other representatives of *P. diffusa*, but unlike them in a weakly carinate calyx. Nothing is gained by making the two "synonymous."

Phlox austromontana Cov. var. *prostrata* E. Nels. (ssp. *p.* Wherry). The Zion Canyon endemic named *P. jonesii* Wherry differs from this in its laxer leaves, deeper-hued corolla, and decidedly longer style. Perhaps it deserves reduction in status, but it is surely too significant to be completely submerged.

Phlox condensata (A. Gray) E. Nels. This taxon is characterized by groups of discrete divergent shoots with appressed dark green leaves, and upwardly glandular pubescence; it grows in the mountains of Colorado above tree-line, or on bleak cliffs somewhat lower, — a typical moist, cold soil "alpine." To reduce to "synonymy" of it morphologically and ecologically distinct desert

SIDA 3 (6): *441—444. 1969.*

taxa seems utterly unrealistic. *Phlox covillei* has interlacing shoots and broader, hairier, and thicker-margined leaves; it grows in the mountains along the California-Nevada boundary, and if it must be reduced at all, would fall under *P. caespitosa*; but why try to hide endemics?

The most incredible toss in the work under review consists in placing *Phlox griseola* Wherry and its ssp. *tumulosa* Wherry into a table of "synonymy" under *P. condensata* (A. Gray) E. Nelson. In contrast to the features of this high-alpine, listed in the preceding paragraph, these desert Phloxes have, in correspondence with their habitat, thick foliage covered with gray wax—producing the aspect to which the specific epithet refers. The copious coarse pubescence is glandless. Their leaves spread from the stems, which interlace to form striking mats and mounds on the dry sands. Only the most extreme endemicophobe could ever "synonomize" taxa so morphological dissimilar as are these.

Page 85. *Phlox longifolia* Nutt. Surely the six taxonomists who have proposed a total of 19 combinations here reduced to complete subjective synonymy were not all such poor observers that they misinterpreted multiple taxa.

Phlox muscoides Nutt. To toss *P. bryoides* of the same author into subjective synonymy is unreasonable, in that the type specimens of the two do show the differences on which Nuttall based his species segregation. What he did overlook was that his taxon *muscoides* was merely a much reduced state of the prior *P. hoodii* Richardson.

Phlox pulvinata (Wherry) Cronq. As the type of this taxon is merely a reduced alpine extreme of *P. caespitosa* Nutt., assignment of it to species status is deemed unjustified. Moreover, study of the respective types does not support the view that *P. douglasii* Hook. is a "synonym" of true *P. caespitosa* Nutt. They differ widely in leaf shape, texture and indument, in inflorescence-pubescence and in sepal and petal dimensions, — the sort of characters on which the species of the dwarf Phloxes are separable.

Phlox stansburyi (Torr.) Heller var. *brevifolia* (A. Gray) E. Nels. This combination was made at a time when the distinctive diagnostic characters of the taxa concerned were not understood. Actually *Phlox stansburyi* (Torr.) Heller, as shown by its type and by recent collections in its type area, is a long-tubed and long-styled taxon. On the other hand Asa Gray was justified in making the combination *Phlox longifolia* var. *brevifolia*, as these are both relatively short-tubed and short-styled. As taxon *brevifolia* shows no relationship to taxon *stansburyi* in that or any other respect, E. Nelson's combination with which this paragraph is headed is deemed unworthy of acceptance. If on the other hand it is felt that *Phlox longifolia* is already overburdened with varieties, no serious objection can be made to accepting species assignment, as *Phlox grayi* Woot. & Standl., for this taxon so characteristic of the Intermountain Region.

Page 85. *Polemonium*. Presumably because it is a more restricted endemic, *P. chartaceum* is reduced to "synonymy" of *P. eximium* Greene. If such plans prevailed, interesting papers like that on California endemics by Steb-

bins and Major (1965) would never appear.

Polemonium foliosissimum A. Gray. In the writer's 1942 review of this genus, the distinctness of several of the endemics submerged in synonymy in the work under discussion was indicated, but no detailed measurements to support this view were presented. Quite recently, there has been published a study of this series by J. C. Anway (1969) in which this lack is supplied. He has found that three of the seven alleged synonyms are morphologically and geographically so distinct as to deserve at least varietal segregation, with the epithets *alpinum* (Brand) Anway, *flavum* (Greene) Anway, and *molle* (Greene) Anway. (The present writer prefers subspecific status.)

Polemonium occidentale Brand. If one follows the International Code of Botanical Nomenclature, this species epithet cannot validly be attributed to Greene, since he proposed it only provisionally, and moreover based it on two distinct taxa. Its first use without these drawbacks was by Brand in 1907. Some of the synonymy listed consists of mere changes in category; but *P. helleri* Brand and *P. intermedium* (Brand) Rydb. are erroneously included here, belonging to divisions of the genus with corymbose rather than thyrsoid inflorescence.

Polemonium pulcherrimum Hook. var. *pulcherrimum*. This is the westernmost of the tufted members of the genus, barely entering, at Mt. Rose, Nevada, the Intermountain Region. The morphologic and geographic relations in this group have recently been discussed on the basis of extensive observations and measurements by the writer (1967). Most of the "synonyms" tabulated represent species which are but distantly or not at all related. The restricted endemic *P. nevadense* Wherry does not exhibit a single *pulcherrimum*-like attribute; and one might suppose that Intermountain botanists would like to have a taxon so unique to their region emphasized rather than suppressed.

Polemonium pulcherrimum Hook. var. *calycinum* (Eastw.) Brand. Confusion reigns under this heading also. It is hard to see how anything can be gained by reducing the commonest, best marked Californian member of the genus, *Polemonium californicum* Eastw., to "synonymy" of an epithet based on a solitary specimen of a monstrosity, to which it shows no resemblance anyway. The type of Miss Eastwood's Californian taxon does not approach the Intermountain Region, but its relative *P. californicum* subsp. *columbianum* (Rydb.) Wherry, 1967, does in Idaho. This taxon is morphologically closer to the eastern *Polemonium reptans* L. than to any variant of *P. pulcherrimum*, but there seems no need to start making new name-combinations to bring this out.

Polemonium pulcherrimum Hook. var. *delicatum* (Rydb.) Cronq. On the basis of the morphologic and geographic features discussed by the writer (1967), this combination is wholly inacceptable.

Critical remarks could be made under still other taxa, but enough has now been said to indicate that the treatment of the Polemoniaceae in the work under discussion needs extensive revision.

American taxonomists are planning a counterpart to the currently appearing *Flora Europaea*. If this is not compiled more realistically than have been some of our recent regional floras, it will fail to attain that status.

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